REMARKS

With respect to the § 112 rejection of claim 20, Applicant directs the Examiner to Figure 6. There it can be seen that that P1 and N1 form a "first inverter" and the INV element forms a "second inverter" with the meaning of the claim.

Applicant respectfully traverses the rejection of the pending claims as anticipated by or obvious in view of US Patent No. 5,489,866 to Diba. In that regard, Applicant disclosed that Schmitt triggers include feedback paths that may be modified to include the current-limiting feature that in turn provides the self-adjusting nature for the claimed inventive Schmitt triggers. For example, as described by the Applicant on, for example, page 6, lines 14 – 21 and page 8, line 14 through page 9, line 7 that either P3 to ground or N3 to VCC in Figure 3a (and also P3 to VCC or N2 to ground in Figure 6) form feedback paths that may be modified through the inclusion of at least one diode. As set forth, for example, on page 7, lines 3 – 18, the at least one diode enables the use of relatively large size transistors within the feedback paths that maintain a desired level of hysteresis for high VCC values. However, the prior art disadvantages of such large transistors (limiting the margin between the high threshold voltage and VCC and also the margin between the low threshold voltage and ground) is obviated because the current-limiting nature of the diodes in the feedback path makes the relatively large transistor act "small" at low VCC values.

Because embodiments of the invention are not limited to Figures 3a, 3b, and 6, Applicant observed, for example, on page 8, lines 14 through line 22 that should a Schmitt trigger include a first feedback path having a first transistor whose gate is tied to the output node and also include a second feedback path having a second transistor whose gate is tied to the output node, these feedback paths may be modified to include an at least one diode.

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In that regard, claim 1 now recites the claim elements of "a first feedback path having a first transistor with a gate terminal coupled to the output node and with a second terminal coupled to the ground node to determine one of the voltage thresholds" and "a second feedback path having a second transistor with a gate terminal coupled to the output node and with a second terminal coupled to the power supply voltage node to determine a remaining one of the voltage thresholds." Because either of these paths may be modified to include the at least one diode, claim 1 also recites the element of "at least one diode coupled to a path selected from the first feedback path and the second feedback path such that an on-current through the selected path is reduced as a supply voltage for the Schmitt trigger is reduced." Support for these elements is as discussed above.

Diba neither recognizes this problem nor provides any solution. In particular, the transistor Q15 in Figure 3 is not coupled to either of first or second feedback paths as recited in claim 1. Thus, the transistor Q15 will not provide the inventive advantages as discussed above. Accordingly, claim 1 and its dependent claims 2 – 11 are allowable over the cited prior art. Claims 3, 4, 6, 7, 8, 10, and 11 have been amended in view of the amendment to claim 1.

Claim 15 has been amended analogously as discussed with regard to claim 1. Thus, claim 15 and its dependent claims 16, 17, 18, and 20 are allowable over the prior art for analogous reasons. Claims 16 and 18 are amended in view of the amendment to claim 15. Because claim 19 is cancelled, the dependency of claim 20 is amended.

Claim 12 is also allowable over the Diba reference. That is because transistor Q15 in Figure 3 is a depletion mode transistor. As known in the art, unlike a diode, depletion mode transistors are normally conducting. Indeed, because Q15 is coupled between VCC and the output node, its will always be conducting and thus present no diode action. For that reason, depletion mode transistors are used primarily for resistive purposes. Moreover,

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depletion mode transistors are incompatible with conventional CMOS processing techniques and thus not present in most modern digital circuitry. Accordingly, there can be no diode action for such a transistor. In sharp contrast, as shown by Applicant's Figure 4, the claimed "at least one diode" has a classic diode i-v characteristic: its current being switched off until the gate voltage increases over 2*VT, whereupon the current increases exponentially.

Claim 12 includes the acts of "changing a supply voltage for the Schmitt trigger; and in response to the changed supply voltage, affecting an on-current through the first feedback path using at least one diode such that the determined voltage threshold satisfies a predetermined threshold." As discussed analogously with respect to claim 1, the Diba reference neither suggests nor teaches affecting the on-current through the feedback path in such a manner as recited in claim 12. Accordingly, claim 12 is also patentable over the cited prior art. Because claims 13 and 14 are dependent upon claim 12, these claims are patentable over the cited prior art for at least the same reasons.

Accordingly, Applicants respectfully submit that the pending claims are in proper form for allowance. Reconsideration and withdrawal of the rejections are respectfully requested and a timely Notice of Allowance is solicited.

If there are any questions regarding any aspect of the application, please call the undersigned at (949) 752-7040.

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Respectfully submitted,

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